_	Imper: 07/000/307/)		. /
(Changed a file from non-ASCII to ASCII Verlfled	d by:	(STIC s
	Changed the margins in cases where the sequence text was "wrapped" down		:
E	Edited a format error in the Current Application Data section, specifically:	NTER	ED
E	Edited the Current Application Data section with the actual current number. Tapplicant was the prior application data; or other	he number inpu	rtted by the
,	Added the mandatory heading and subheadings for "Current Application Data	t [#] .	
E	Edited the "Number of Sequences" field. The applicant spelled out a number	instead of using	an integer.
	Changed the spelling of a mandatory field (the headings or subheadings), spe	ecifically:	
C	Corrected the SEQ ID NO when obviously incorrect. The sequence numbers	that were edited	d were:
l	Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID N	IO's edited:	
	Corrected subheading placement. All responses must be on the same line as applicant placed a response below the subheading, this was moved to its applicant	each subheadi ropriate place.	ng. If the
1	Inserted colons after headings/subheadings. Headings edited included:	·	
•	Deleted extra, invalid, headings used by an applicant, specifically:		
	Deleted: ☐ non-ASCII "garbage" at the beginning/end of files; ☐ secretar ☐ page numbers throughout text; ☐ other invalid text, such as	y initials/filenam	ne at end of fi
	Inserted mandatory headings, specifically:		•
	Corrected an obvious error in the response, specifically:		
_	Edited identifiers where upper case is used but lower case is required, or vice	e versa.	
	Corrected an error in the Number of Sequences field, specifically:		<u>-</u>
	A "Hard Page Break" code was inserted by the applicant. All occurrences ha	d to be deleted.	
D	Deleted ending stop codon in amino acid sequences and adjusted the "(A)Le due to a Patentin bug). Sequences corrected:	ngth:" field acco	ordingly (erro
	Other:		

*Examiner: The above corrections must be communicated to the applicant in the first Office Action. DO NOT send a copy of this form.

RAW SEQUENCE LISTING PATENT APPLICATION US/09/068,507A

DATE: 02/18/1999 TIME: 15:34:22

INPUT SET: S30728.raw

This Raw Listing contains the General Information Section and up to the first 5 pages.

1	SEQUENCE LISTING ENTERED
2 3	(1) General Information:
4 5 6 7 8 9 10	(i) APPLICANT: EIJSINK, VINCENT G.H. BRURBERG, MAY B. NES, INGOLF F.
	(ii) TITLE OF INVENTION: EXPRESSION SYSTEM IN MICROORGANISM AND ITS USE FOR EXPRESSING HETEROLOGOUS AND HOMOLOGOUS PROTEINS
12 13	(iii) NUMBER OF SEQUENCES: 12
14 15 16 17 18 19 20 21 22 23 24 25 26 27	 (iv) CORRESPONDENCE ADDRESS: (A) ADDRESSEE: BIRCH, STEWART, KOLASCH & BIRCH, LLP (B) STREET: PO BOX 747 (C) CITY: FALLS CHURCH (D) STATE: VA (E) COUNTRY: USA (F) ZIP: 22040-0747
	 (v) COMPUTER READABLE FORM: (A) MEDIUM TYPE: Floppy disk (B) COMPUTER: IBM PC compatible (C) OPERATING SYSTEM: PC-DOS/MS-DOS (D) SOFTWARE: PatentIn Release #1.0, Version #1.30
28 29 30 31 32 33	<pre>(vi) CURRENT APPLICATION DATA: (A) APPLICATION NUMBER: (B) FILING DATE: (C) CLASSIFICATION:</pre>
34 35 36 37	(viii) ATTORNEY/AGENT INFORMATION: (A) NAME: MURPHY JR., GERLAD M. (B) REGISTRATION NUMBER: 28,977 (C) REFERENCE/DOCKET NUMBER: 1380-0122P
38 39 40 41 42	(ix) TELECOMMUNICATION INFORMATION: (A) TELEPHONE: 703-205-8000 (B) TELEFAX: 703-205-8050
43 44	(2) INFORMATION FOR SEQ ID NO:1:
45 46	(i) SEQUENCE CHARACTERISTICS:

RAW SEQUENCE LISTING PATENT APPLICATION US/09/068,507A

DATE: 02/18/1999 TIME: 15:34:22

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		INPUT SET: S30728.raw
47	(A) LENGTH: 26 amino acids	
48	(B) TYPE: amino acid	
49	(C) STRANDEDNESS: single	
50	(D) TOPOLOGY: linear	•
	(b) TOPOLOGI: Tilleat	
51		
52	(ii) MOLECULE TYPE: peptide	
53		
54	(iii) HYPOTHETICAL: NO	
55		
56	(iv) ANTI-SENSE: NO	
	(IV) ANII-SENSE. NO	
57		
58	<pre>(v) FRAGMENT TYPE: C-terminal</pre>	
59		
60	(vi) ORIGINAL SOURCE:	
61	(A) ORGANISM: Lactobacillus platarum	
62	(B) STRAIN: C11	
63	(D) DIRAIN. CII	
64		
65		
66	(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:	
67		
68	Lys Ser Ser Ala Tyr Ser Leu Gln Met Gly Ala T	hr Ala Tle Ivs Gln
69	1 5 10	15
	1 5	15
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71	Val Lys Lys Leu Phe Lys Lys Trp Gly Trp	
72	20 25	
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73 74		
74	(2) INFORMATION FOR SEC ID NO.2.	
74 75	(2) INFORMATION FOR SEQ ID NO:2:	
74 75 76	"	
74 75 76 77	(i) SEQUENCE CHARACTERISTICS:	
74 75 76 77 78	(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs	
74 75 76 77	(i) SEQUENCE CHARACTERISTICS:	
74 75 76 77 78	(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs	
74 75 76 77 78 79	(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single	
74 75 76 77 78 79 80 81	(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs (B) TYPE: nucleic acid	
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74 75 76 77 78 79 80 81 82 83 84 85	 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear (ii) MOLECULE TYPE: DNA (genomic) (ix) FEATURE: (A) NAME/KEY: CDS 	
74 75 76 77 78 79 80 81 82 83 84 85 86 87 88	 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear (ii) MOLECULE TYPE: DNA (genomic) (ix) FEATURE: 	
74 75 76 77 78 79 80 81 82 83 84 85 86 87 88	 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear (ii) MOLECULE TYPE: DNA (genomic) (ix) FEATURE: (A) NAME/KEY: CDS 	
74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 90	 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear (ii) MOLECULE TYPE: DNA (genomic) (ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 1114 	
74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 90 91	 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear (ii) MOLECULE TYPE: DNA (genomic) (ix) FEATURE: (A) NAME/KEY: CDS 	
74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 90 91	 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear (ii) MOLECULE TYPE: DNA (genomic) (ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 1114 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2: 	
74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 90 91	(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear (ii) MOLECULE TYPE: DNA (genomic) (ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 1114 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2: ATG ATG ATA TTT AAA AAA CTT TCA GAA AAA GAA TTG CAA	
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74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 90 91 92 93	(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear (ii) MOLECULE TYPE: DNA (genomic) (ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 1114 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2: ATG ATG ATA TTT AAA AAA CTT TCA GAA AAA GAA TTG CAAMET Met Met Ile Phe Lys Lys Leu Ser Glu Lys Glu Leu Glr	n Lys Ile Asn
74 75 76 77 78 79 81 82 83 84 85 86 87 88 90 91 93 94 95	(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear (ii) MOLECULE TYPE: DNA (genomic) (ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 1114 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2: ATG ATG ATA TTT AAA AAA CTT TCA GAA AAA GAA TTG CAAMET Met Met Ile Phe Lys Lys Leu Ser Glu Lys Glu Leu Glr	
74 775 777 78 81 82 83 84 85 87 88 99 99 99 99 99 99 99 99	(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear (ii) MOLECULE TYPE: DNA (genomic) (ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 1114 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2: ATG ATG ATA TTT AAA AAA CTT TCA GAA AAA GAA TTG CAAMet Met Ile Phe Lys Lys Leu Ser Glu Lys Glu Leu Glr 1 5 10	n Lys Ile Asn 15
74 775 777 78 81 82 83 84 85 87 88 99 99 99 99 99 99 99 99	(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear (ii) MOLECULE TYPE: DNA (genomic) (ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 1114 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2: ATG ATG ATA TTT AAA AAA CTT TCA GAA AAA GAA TTG CAAMet Met Ile Phe Lys Lys Leu Ser Glu Lys Glu Leu Glr 1 5 10 GGT GGT ATG GCA GGA AAT AGT TCT AAT TTT ATT CAT AAG	1 Lys Ile Asn 15 G ATT AAA CAA 96
74 77 77 77 81 82 83 84 85 87 88 99 99 99 99 99 99 99 99 99 99 99 99	(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear (ii) MOLECULE TYPE: DNA (genomic) (ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 1114 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2: ATG ATG ATA TTT AAA AAA CTT TCA GAA AAA GAA TTG CAAMet Met Ile Phe Lys Lys Leu Ser Glu Lys Glu Leu Glu 1 5 GGT GGT ATG GCA GGA AAT AGT TCT AAT TTT ATT CAT AAG Gly Gly Met Ala Gly Asn Ser Ser Asn Phe Ile His Lys	Lys Ile Asn 15 GATT AAA CAA 96 SIle Lys Gln
74 775 777 78 81 82 83 84 85 87 88 99 99 99 99 99 99 99 99	(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 114 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear (ii) MOLECULE TYPE: DNA (genomic) (ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 1114 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2: ATG ATG ATA TTT AAA AAA CTT TCA GAA AAA GAA TTG CAAMet Met Ile Phe Lys Lys Leu Ser Glu Lys Glu Leu Glr 1 5 10 GGT GGT ATG GCA GGA AAT AGT TCT AAT TTT ATT CAT AAG	1 Lys Ile Asn 15 G ATT AAA CAA 96

RAW SEQUENCE LISTING PATENT APPLICATION US/09/068,507A

DATE: 02/18/1999 TIME: 15:34:23

INPUT SET: S30728.raw

100 101 102 103 104 105	ATT TTT ACC CAT CGT TAA Ile Phe Thr His Arg * 35	114
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108	(i) SEQUENCE CHARACTERISTICS:	
109	(A) LENGTH: 37 amino acids	
110	(B) TYPE: amino acid	
111	(D) TOPOLOGY: linear	
112	(ii) MOIECILE TYPE, pentide	
113 114	(ii) MOLECULE TYPE: peptide	
114	(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:	
116	(XI) DEGODACE PEDCATITION DEG ID NO. 0	
117	Met Met Ile Phe Lys Lys Leu Ser Glu Lys Glu Leu Gln Lys Ile Asn	
118	1 5 10 15	
119		
120	Gly Gly Met Ala Gly Asn Ser Ser Asn Phe Ile His Lys Ile Lys Gln	
121	20 25 30	
122		
123	Ile Phe Thr His Arg	
124	35	
125		
126 127	(2) INFORMATION FOR SEQ ID NO:4:	
128	(2) INFORMATION FOR DEG ID NO.1.	
129	(i) SEQUENCE CHARACTERISTICS:	
130	(A) LENGTH: 186 base pairs	
131	(B) TYPE: nucleic acid	
132	(C) STRANDEDNESS: single	
133	(D) TOPOLOGY: linear	
134	(ii) MOLEGILE MADE. DNA (conomic)	
135 136	(ii) MOLECULE TYPE: DNA (genomic)	
137		
138	(ix) FEATURE:	
139	(A) NAME/KEY: CDS	
140	(B) LOCATION: 1186	
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145 146	Met Glu Lys Phe Ile Glu Leu Ser Leu Lys Glu Val Thr Ala Ile Thr	
147	1 5 10 15	
148		
149	GGT GGA AAA TAT TAT GGT AAC GGT GTA CAC TGT GGA AAA CAT TCA TGT	96
150	Gly Gly Lys Tyr Tyr Gly Asn Gly Val His Cys Gly Lys His Ser Cys	
151	20 25 30	
152		

RAW SEQUENCE LISTING PATENT APPLICATION US/09/068,507A

DATE: 02/18/1999 TIME: 15:34:23

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1.50	ACC GTA GAC TGG GGA ACA GCT ATT GGA AAT ATC GGA AAT AAT GCA GCT	144
	Thr Val Asp Trp Gly Thr Ala Ile Gly Asn Ile Gly Asn Asn Ala Ala	
154	4.5	
155	35 40 45	
156	GCA AAC TGG GCC ACA GGC GGA AAC GCT GGC TGG AAT AAA TAA	186
157	Ale Age Tro Ale Thr Cly Cly Age Ale Gly Tro Age Lys *	
158	Ala Asii lip Ala liii Giy Giy Asii Ala Gi; lip	
159	50 55 60	
160		
161		
162	(2) INFORMATION FOR SEQ ID NO:5:	
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164	(i) SEQUENCE CHARACTERISTICS:	
165	(A) LENGTH: 61 amino acids	
166	(B) TYPE: amino acid	
167	(D) TOPOLOGY: linear	
168	·	
169	(ii) MOLECULE TYPE: peptide	
170	(22, 333223322322	
171	(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:	
172	(XI) Digomor Disontribution	
172	Met Glu Lys Phe Ile Glu Leu Ser Leu Lys Glu Val Thr Ala Ile Thr	
	4.0	
174	1 5 10 15	
175	Gly Gly Lys Tyr Tyr Gly Asn Gly Val His Cys Gly Lys His Ser Cys	
176		
177	20 25 30	
178		
179	Thr Val Asp Trp Gly Thr Ala Ile Gly Asn Ile Gly Asn Asn Ala Ala	
180	35 40 45	
181		
182	Ala Asn Trp Ala Thr Gly Gly Asn Ala Gly Trp Asn Lys	
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185		
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190	(B) TYPE: nucleic acid	
191	(C) STRANDEDNESS: single	
192	(D) TOPOLOGY: linear	
193	, - ,	
194	(ii) MOLECULE TYPE: other nucleic acid	
195	(A) DESCRIPTION: /desc = "Promoter"	
196	(43) DEDUCTE LEGIT , 4555	
196		
	(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:	
198	(XI) BEQUENCE DESCRIFTION. DEQ ID NO.0.	
199	GAGTTCTTAA CGTTAATCCG AAAAAAACTA ACGTTAATAT TAAAAAATAA GATCCGCTTG	60
200	GAGTTUTTAA CGTTAATCCG AAAAMAACTA ACGTTAATAT TAAAAAATAA GATCCGCTTG	- -
201	TO A THIN THE TANK A THE TOTAL TOTAL	82
202	TGAATTATGT ATAATTTGAT TN	~ <u>~</u>
203		
204	(a) TYPODWARTON FOR SEO ID NO.7.	
~ ~ =	(A) TRITICIDAM MITCAL EVAD CEVA III NOTO (

(2) INFORMATION FOR SEQ ID NO:7:

205

RAW SEQUENCE LISTING PATENT APPLICATION US/09/068,507A

DATE: 02/18/1999 TIME: 15:34:23

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006		
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207	(A) LENGTH: 81 base pairs	
208	(B) TYPE: nucleic acid	
209		
210	(C) STRANDEDNESS: single	
211	(D) TOPOLOGY: linear	
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213	(ii) MOLECULE TYPE: other nucleic acid	
214	(A) DESCRIPTION: /desc = "Promoter"	
215		
216		
217	(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:	
218	(3.1.) 22201301 111111111111111111111111111111	
219	CGCATATTAA CGTTTAACCG ATAAAGTTGA ACGTTAATAT TTTTTTTGCG CAGAAATGGT	60
219	CGCATATIAA CGTTTAACCO TITTATCTOTT	
	AAATTGAAGC ATAATAGTCT N	81
221	AAATIGAAGC ATAATAGTCI N	
222		
223		
224	(2) INFORMATION FOR SEQ ID NO:8:	
225		
226	(i) SEQUENCE CHARACTERISTICS:	
227		
228	(B) TYPE: nucleic acid	
229		
230	(D) TOPOLOGY: linear	
231		
232	(ii) MOLECULE TYPE: other nucleic acid	
233	(A) DESCRIPTION: /desc = "Promoter"	
234		
235		
236	(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:	
237	(XI) BEGOINGE BESONET TECHNOLOGY	
237	GCAGCATTAA CGTTAATTTT GATAAACGTA ACGTTAATGG ATAATCATCC TGTTTACAAA	60
	GCAGCATTAA CGTTAATTTI OMMILLOOM 1100-1100-1100	
239	TO CHOCKE HOLD CAMPANIERA COM	82
240	TAGTGTATGA CATAATTAAG TN	
241		
242	AND THE PROPERTY OF THE PROPER	
243	(2) INFORMATION FOR SEQ ID NO:9:	
244		
245	(i) SEQUENCE CHARACTERISTICS:	
246	(A) LENGTH: 81 base pairs	
247	(B) TYPE: nucleic acid	
248	(C) STRANDEDNESS: single	
249	(D) TOPOLOGY: linear	
250		
25		•

SEQUENCE VERIFICATION REPORT PATENT APPLICATION US/09/068,507A

DATE: 02/18/1999

TIME: 15:34:24

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PAGE: 1

RAW SEQUENCE LISTING PATENT APPLICATION US/09/068,507A

DATE: 02/18/1999 TIME: 13:50:38

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This Raw Listing contains the General Information Section and up to the first 5 pages.

1	SEQUENCE LISTING	
2	Co. Does M	04.0
3 4	1) General Information:	of Comply
5 6 7	(i) APPLICANT: EIJSINK, VINCENT G.H. BRURBERG, MAY B. NES, INGOLF F.	ot Comply Skette Needec
8 9 10 11 12	(ii) TITLE OF INVENTION: EXPRESSION SYSTEM IN MICROORGANISM AN ITS USE FOR EXPRESSING HETEROLOGOUS AND HOMOLOGOUS PROTEINS	TD.
13 14	(iii) NUMBER OF SEQUENCES: 12	
14 15 16 17 18 19 20 21	 (iv) CORRESPONDENCE ADDRESS: (A) ADDRESSEE: BIRCH, STEWART, KOLASCH & BIRCH, LLP (B) STREET: PO BOX 747 (C) CITY: FALLS CHURCH (D) STATE: VA (E) COUNTRY: USA (F) ZIP: 22040-0747 	
22 23 24 25 26 27 28	 (v) COMPUTER READABLE FORM: (A) MEDIUM TYPE: Floppy disk (B) COMPUTER: IBM PC compatible (C) OPERATING SYSTEM: PC-DOS/MS-DOS (D) SOFTWARE: PatentIn Release #1.0, Version #1.30 	
29 30 31 32 33	<pre>(vi) CURRENT APPLICATION DATA: (A) APPLICATION NUMBER: (B) FILING DATE: (C) CLASSIFICATION:</pre>	
34 35 36 37	(viii) ATTORNEY/AGENT INFORMATION: (A) NAME: MURPHY JR., GERLAD M. (B) REGISTRATION NUMBER: 28,977 (C) REFERENCE/DOCKET NUMBER: 1380-0122P	•
38 39 40 41 42 43	(ix) TELECOMMUNICATION INFORMATION: (A) TELEPHONE: 703-205-8000 (B) TELEFAX: 703-205-8050	
44 45	(2) INFORMATION FOR SEQ ID NO:1:	
46	(i) SEQUENCE CHARACTERISTICS:	

(2) INFORMATION FOR SEQ ID NO:3: (i) SEQUENCE CHARACTERISTICS: 37 (A) LENGTH: (38 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: peptide (xi) SEQUENCE DESCRIPTION: SEQ ID NO:3: Met Met Ile Phe Lys Lys Leu Ser Glu Lys Glu Leu Gln Lys Ile Asn Gly Gly Met Ala Gly Asn Ser Ser Asn Phe Ile His Lys Ile Lys Gln Ile Phe Thr His Arg 35 (2) INFORMATION FOR SEQ ID NO:4: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 186 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear (ii) MOLECULE TYPE: DNA (genomic) (ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 1..186 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:4: ATG GAA AAG TTT ATT GAA TTA TCT TTA AAA GAA GTA ACA GCA ATT ACA 48 Met Glu Lys Phe Ile Glu Leu Ser Leu Lys Glu Val Thr Ala Ile Thr 1 GGT GGA AAA TAT TAT GGT AAC GGT GTA CAC TGT GGA AAA CAT TCA TGT 96 Gly Gly Lys Tyr Tyr Gly Asn Gly Val His Cys Gly Lys His Ser Cys 20 ACC GTA GAC TGG GGA ACA GCT ATT GGA AAT ATC GGA AAT AAT GCA GCT 144 Thr Val Asp Trp Gly Thr Ala Ile Gly Asn Ile Gly Asn Asn Ala Ala 35 186 GCA AAC TGG GCC ACA GGC GGA AAC GCT GGC TGG AAT AAA TAA Ala Asn Trp Ala Thr Gly Gly Asn Ala Gly Trp Asn Lys 50 55 (2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 62 amino acids (B) TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Met Glu Lys Phe Ile Glu Leu Ser Leu Lys Glu Val Thr Ala Ile Thr 1 5 10 15

Gly Gly Lys Tyr Tyr Gly Asn Gly Val His Cys Gly Lys His Ser Cys 20 25 30

Thr Val Asp Trp Gly Thr Ala Ile Gly Asn Ile Gly Asn Asn Ala Ala 35 40 45 /

Ala Asn Trp Ala Thr Gly Gly Asn Ala Gly Trp Asn Lys 50 55 60